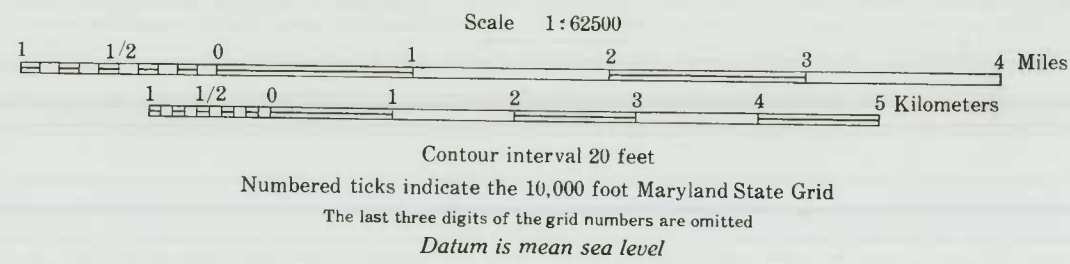


MINERAL RESOURCES OF  
WORCESTER COUNTY  
MARYLAND

By  
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1990

STATE OF MARYLAND  
DEPARTMENT OF NATURAL RESOURCES  
MARYLAND GEOLOGICAL SURVEY  
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SAND AND GRAVEL RESOURCES  
OF WORCESTER COUNTY

Introduction

This map shows past and present mining operations and areas of potential mineral resources in Worcester County. Sand and, to a lesser extent, gravel are the county's only mineral resources. Because the county is located at a considerable distance from the major population centers, most of the material, except for that mined in the southern part of the county, is used locally. The gravels of the Eastern Shore counties tend to be finer grained than those west of Chesapeake Bay. In most pits 90% of the material will pass 10mm. Blades Materials, Inc. is the only pit which recovers gravel.

The sand and gravel industry has grown from one operator in 1966 to eleven in 1989. At present there are eleven active pits in the county. Production from Worcester County in 1988 was 677,910 tons.

Approximately 472 acres have been disturbed by mining, of which about 15% have been reclaimed. Numerous small pits, some not found and some obliterated by time, are not reflected in these figures.

The following chart gives a summary of the disturbed land in 1989:

Inactive and Abandoned Acreage	Reclaimed Acreage	Working Acreage	Total Acreage
94	84	388	566

Acreage data were compiled from surface-mining permits, field investigations, aerial photographs, and information furnished by various sand and gravel operators.

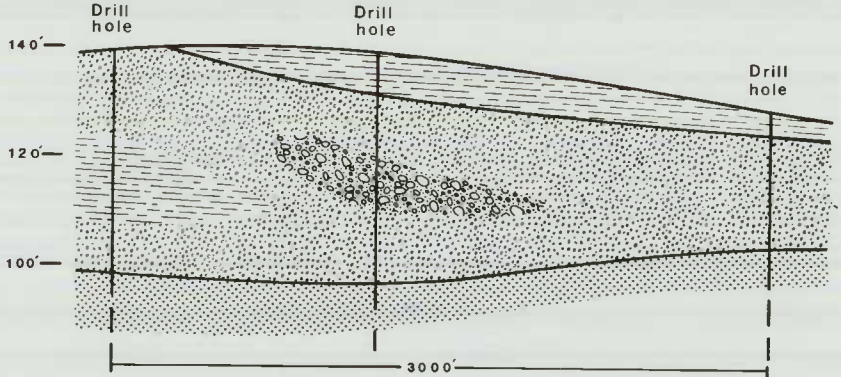
Geology

The sand and gravel deposits of Worcester County are confined to five units: the Ironshire Formation (Pleistocene), the Beaver Dam Sand, (Upper? and Middle? Pliocene), the Parsonsburg Sand (Pleistocene), the Omar Formation (Pleistocene) and along the east side of the Pocomoke River, the Kent Island Formation (Pleistocene). These units, except for the Parsonsburg which rarely exceeds 15 feet in Worcester County, can be in excess of 30 feet thick.

These formations are not everywhere suitable for aggregate or fill. The quality of the material is variable and its use is often determined by its location and the particular specifications of the job for which the material is needed. In addition, suitable aggregate or fill material may sometimes be found outside the area outlined as potential sand and gravel resources.

During the course of this investigation, 50 exposures and a number of drill hole logs were examined. Using sand and gravel thickness from these sources, an attempt was made to delineate those areas in which economic sand and gravel deposits are most likely to occur, but deposits tend to be site specific and no continuity could be established. No attempt has been made to examine quality or overburden thickness. The information on this map should be used with great caution because sand and gravel deposits commonly change in thickness and composition over short distances, and in some cases location is the determining factor as to whether a particular deposit can be used. Specific site investigations must be made before any actual reserve estimates or economic projections can be made.

The following cross section from a site west of Leonardtown, Maryland serves to illustrate both the lateral and vertical faces changes which can occur over relatively short distances.



Resource Pre-emption

Other factors not considered here influence economic viability of sand and gravel operations in certain areas. Important among these are both the proximity to and pre-emption by urban development.

SELECTED REFERENCES

Bachman, L. J. and Wilson, J. M., 1984, The Columbia aquifer of the Eastern Shore of Maryland: Maryland Geological Survey Rept. of Invest. No. 40.

Cleaves, Emery T. et al., 1987, Quaternary geologic map of the Chesapeake Bay 4" x 6" quadrangle, United States: U.S. Geological Survey, map I-1420, scale 1:1,000,000.

Denny, C. S. et al., 1979, The Parsonsburg Sand in the central Delmarva Peninsula, Maryland and Delaware: U.S. Geological Survey Prof. Paper 1067-B, 15 p.

Hess, Melodie, 1977, Drill hole logs and location map of surface and shallow subsurface materials, central and southern Delmarva Peninsula, Maryland, Delaware, and Virginia: U.S. Geological Survey, map MF-899, scale 1:250,000.

Owens, J. P. and Denny, C. S., 1979, Surface and shallow subsurface geologic studies in the emerged coastal plain of the Middle Atlantic States: U.S. Geological Survey Prof. Paper 1067-A, 28 p.

1978, Geologic map of Worcester County: Maryland Geological Survey, scale 1:82,500.

ACTIVE OPERATIONS

- |                                    |                      |
|------------------------------------|----------------------|
| 1. Blades Materials, Inc.          | Washed sand & gravel |
| 2. Cowger, Robert L., Jr.          | Sand                 |
| 3. Cygnet Construction Corp.       | Sand                 |
| 4. Eller, Lance J., Inc.           | Bankrun              |
| 5. Gumm, Calvin D.                 | Sand                 |
| 6. Hickman, Louis                  | Fill material        |
| 7. I. A. Construction Corp.        | Sand                 |
| 8. Johnson, Thomas, Jr.            | Fill material        |
| 9. McAllisters Sand & Gravel, Inc. | Bankrun              |
| 10. Raynes Sand & Gravel, Inc.     | Sand                 |
| 11. Steen Associates, Inc.         | Bankrun              |

MAP SYMBOLS

Active sand and gravel, sand, or borrow pit  
Number refers to operator.

Abandoned sand and gravel, sand or borrow pit

Areas of potential sand or sand and gravel

Base map, Worcester County Topographic Map published by the Maryland Geological Survey, 1984

